

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 07-199889

(43)Date of publication of application : 04.08.1995

(51)Int.Cl.

G09G 5/14

(21)Application number : 05-353807

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(22)Date of filing : 29.12.1993

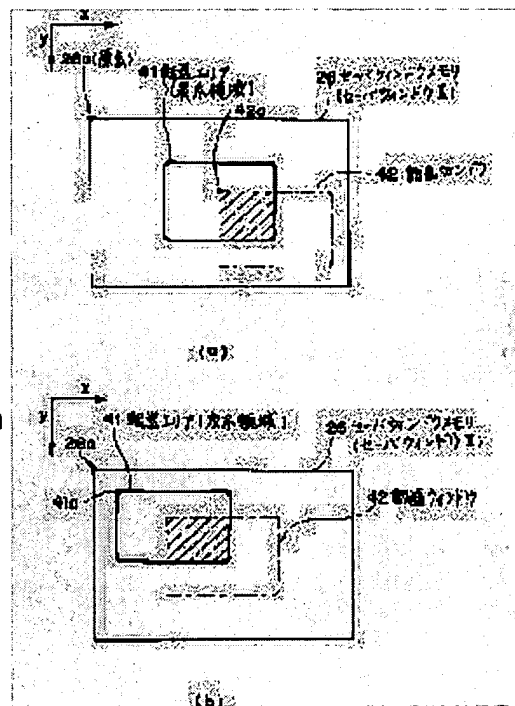
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## (54) DISPLAY CONTROLLER

### (57)Abstract:

**PURPOSE:** To realize a screen saver picture with a screen burning prevention function and excellent in decorative property also.

**CONSTITUTION:** A transfer area 41 to a display memory is fixedly set in a saver window memory 26. In the saver window memory 26, first of all, black (nondisplay) is plotted, and then, a dynamic image window 42 is plotted. In such a case, the plotting position of the dynamic image window 42 in the memory 26 is changed at every frame by, e.g. the occurrence of random number, etc. Thus, the image content in the transfer area 41 becomes the dynamic image with a black background, and the display position and the size of the dynamic image are changed successively. Then, by transferring the content of the transfer area 41 to the display memory, the dynamic image with black background is displayed on a screen while changing the size and the display position at random.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than  
the examiner's decision of rejection or  
application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's  
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CLAIMS

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[Claim(s)]

[Claim 1] The display control characterized by having the 1st control means which the 1st window is generated [ control means ] and displays this on the screen of a display, and the 2nd control means which the 2nd window is generated, and displays this for the display position on said 1st window while making it change serially.

[Claim 2] When it is supervised that generating of this input event does not take place this beyond fixed time amount with a monitor means to supervise that the input event to an information processor does not occur beyond fixed time amount, and this monitor means The 1st control means which the 1st window is generated [ control means ] and displays this on a screen, the 2nd window -- generating -- this -- the display control characterized by having the 2nd control means which indicates said 1st window by the screen on the 2nd window so that the display position may change serially.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the display control which controls the image display for preventing especially printing of the screen of a display with respect to the display control which performs control which displays an image on the screen (screen) of a display.

[0002]

[Description of the Prior Art] Conventionally, the windowing system provided only to comparatively expensive computers, such as a workstation, is becoming a criterion also in a cheap personal computer. This windowing system provides a user with the user interface of the GUI (graphical user interface) base, displays the rectangle field called a window on the screen of a display, and performs various application programs in this window. Graphical images, such as a menu specified by each application program, a carbon button, an icon, and a dialog box, are developed by this window, and a user can work a request now by easy actuation in it by carrying out selection assignment of those graphical images using pointing devices, such as a mouse.

[0003] However, if a personal computer spreads through a general user widely and they come to be used as client machines, such as a terminal unit and LAN (local area network), etc. also in office, the problem of the seizure of those scopes will have come to carry out under a front face.

[0004] Namely, in the CRT (Cat-hode Ray Tube) display which has spread widely as a computer display, a desired image can be displayed now on this screen by making it correspond to each pixel on the surface of a screen, applying a fluorescent substance, and irradiating the electron beam generated by the fluorescent substance of each of this pixel from an electron gun.

[0005] In this case, if the same image is displayed on this screen for a long time, as a result of continuing irradiating at an electron beam succeeding [ for a long time ] the fluorescent substance of a certain specific pixel, the fluorescent substance which is this pixel will deteriorate. Thus, if a fluorescent substance deteriorates, this fluorescent substance will continue emitting [ come ] light, even if the exposure of an electron beam stops. Consequently, the phenomenon called the so-called "seizure of a screen" occurs, and the after-image of a fixed image continues being displayed [ come ] on a screen after it.

[0006] This is caused by carrying out usage, such as making a seat as the bottom long duration outside, while the user had displayed the activity screen on the display. And generally the software which prevents printing of such a screen is called the "screen saver." This screen saver performs control which starts and prevents printing of this screen to a screen, when events, such as a fixed time amount key input and mouse actuation, do not occur. Although this control was conventionally performed by only stopping the image display to a screen, recently, animations, such as easy computer graphics and animation, are displayed and a kind of role like accessories is also increasingly borne in office etc.

[0007] Drawing 7 is drawing explaining the means of displaying of the conventional screen saver which thought such fanciness as important. Screen 1 shown in the upper right direction of this drawing shows the contents of a display displayed on the screen of a display by the application program, while the

screen saver is not operating. The overlap display of the three windows is carried out in this example. On the other hand, a screen saver transposes Screen 2 shown in the said drawing upper left direction to the display screen 1 of the above-mentioned application program, and it shows the contents of a display displayed on a screen.

[0008] If a screen saver starts, it will draw the contents of the above-mentioned screen 2 to the frame memory for a display. That is, overwrite of the self-screen 2 is carried out till then on the display screen 1 of the above-mentioned application program drawn in this frame memory. Consequently, after screen saver starting, Screen 3 of the contents shown in the center of the said drawing lower part, i.e., the display screen of a screen saver, will be displayed as it is. A screen saver displays on a screen the animation image in which fish 3a is swimming by rewriting the contents of a display of this screen 3 a fixed period.

[0009]

[Problem(s) to be Solved by the Invention] However, when the above means of displaying were held, there was a case where it became the contents to which the image of a specific region with a screen was fixed. Now, the function of the screen which is the original purpose of a screen saver of seizure prevention cannot be achieved.

[0010] The technical problem of this invention is realizing the display control which has the screen saver ability which can prevent printing of the screen on the screen of a display completely, without spoiling fanciness.

[0011]

[Means for Solving the Problem] Invention according to claim 1 has the following means. The 1st control means generates the 1st window and displays this on the screen of a display.

[0012] The 2nd control means generates the 2nd window, and it displays this for the display position on said 1st window, making it change serially. A still picture is displayed on said 1st window. This still picture may be the image of for example, whole surface black (non-display). Moreover, animations, such as animation, are displayed on the 2nd window.

[0013] Invention according to claim 2 has the following means. A monitor means supervises that the input event to an information processor does not occur beyond fixed time amount.

[0014] When it is supervised that generating of this input event does not take place this beyond fixed time amount with this monitor means, the 1st control means generates the 1st window and displays this on a screen.

[0015] the 2nd control means -- the 2nd window -- generating -- this -- on the 2nd window, said 1st window is indicated by the screen so that the display position may change serially. Dynamic images, such as animation and computer graphics, are displayed on said 1st window. Moreover, a still picture is displayed on the 2nd window. For example, all the pixels of this still picture may be black (non-display) images.

[0016]

[Function] The operation of invention according to claim 1 is as follows. The 1st control means displays the 1st generated window all over the screen of a display. after, as for the 2nd control means, the display of for example, the 1st window of the above was made -- for example, the 2nd window where size is smaller than this 1st window -- generating -- this -- this -- it is made to display on a screen, changing the location at random on the 1st window

[0017] Therefore, screen saver ability which could prevent printing of a screen completely and was equipped also with the function as fanciness is realized by using the 1st window of the above as the window of the same size as the screen of whole surface black (non-display), and making it display animations, such as computer graphics and animation, on the 2nd window of the above.

[0018] The operation of invention according to claim 2 is as follows. The monitor means is monitoring generating of the input event from a keyboard, a mouse, etc. continuously, and when it does not generate beyond fixed time amount as which this input event was determined beforehand, it notifies this purport to the 1st control means.

[0019] If this notice is received, the 1st control means will generate the 1st window and will display this

on a screen. The 2nd control means is started by the directions from a user, and generates the 2nd window. This 2nd window is for example, whole surface black (non-display), and that size is the same size as a screen. next, the 2nd control means displays the 2nd window of the above on a screen -- making -- a degree -- the 1st window of the above -- this -- it is made to display on the 1st window in this case, this 1st window -- this -- it controls so that the display position on the 2nd window changes to random serially.

[0020] Therefore, also in this invention, while being able to prevent printing of a screen completely like previous invention by displaying an animation on the 2nd window of the above, it becomes possible to offer the screen saver which also has a function as an ornament screen. Moreover, if a user performs neither key input nor mouse actuation beyond fixed time amount, since an animation (the 1st window) will be automatically displayed on the screen of a display, it is convenient, and it is \*\*.

[0021]

[Example] Hereafter, the example of this invention is explained, referring to a drawing. Drawing 1 is the block diagram showing the configuration of the information processor equipped with the screen saver ability which is the example of this invention.

[0022] CPU10 performs programs, such as OS (operating system) loaded on the non-illustrated primary storage, is arithmetic and program control which controls the whole system, and consists of a microprocessor etc.

[0023] A program file 11 is a file in which various application programs are stored, for example, is created in external storage, such as a magnetic disk drive and optical-magnetic disc equipment.

[0024] The program manipulation section 12 reads the application program stored in the program file 11 from this external storage, and performs it. graphic video RAM (graphic Video RAM) in which display memory 13 stores a bit map image data it is -- the image of the image of the screen saver screen drawn by the image and the screen savers I21 and I22 mentioned later of a multi-window screen is stored in a bit map format.

[0025] A display 14 consists of screen-display equipments, such as a CRT display and a liquid crystal display, inputs the bit map image data stored in this display memory 13 in the form of a video signal through a non-illustrated display and control section, and displays a multi-window screen and the screen for screen savers on the screen.

[0026] The windowing section 15 performs processing concerning the window at large displayed on the screen of this display 14. That is, generation of the window on this screen, iconification of this window, menu display in this window, modification of a window size, migration of the display position of a window, etc. are performed by drawing the bit map image data concerned to display memory 13.

[0027] The window memory 16 is memory which stores management information required in order that the windowing section 15 may perform the above window display controls, the bit map image data of each window, etc., for example, consists of the rewritable semiconductor memory of RAM (random access memory) etc. There are information for managing the information concerning the display order of this window at the time of indicating the information about the pointer to current, the display position and size about the window currently displayed on the screen, and the bit map image data concerned and the application currently performed in this window and two or more windows by superposition and the window which is active now, information about the menu further displayed in an icon or each window, etc. in this management information. In addition, when ID (identifier) is assigned to the generated window and a request of window generation is received from the program manipulation section 12, ID of the window generated based on this request is returned.

[0028] A mouse 17 is a pointing device used for an icon, selection actuation of a menu, etc. on the display screen of a display 14, and a mouse cursor moves it on this display screen with the migration. Moreover, it has two or more carbon buttons with which actuation of a click, a double click, etc. is made at the time of selection of this icon or a menu.

[0029] The key input section 18 is equipped with two or more keys, such as keys used for an alphabetic character input into files, such as a text file currently created by the application programs (for example, word processor software etc.) currently executed in the window currently displayed on the screen of a

display 14, etc., such as an alphabetic character and Cana, and a function key, a cursor key further used for screen rolling in a window etc.

[0030] through the interface which un-illustrating all boils this mouse 17 and the key input section 18, respectively, and corresponds, it connects with CPU10, and if actuation is performed by the user to them, those actuation information will be notified by interruption to CPU10 through the interface which this corresponds.

[0031] A screen saver I21 displays the animation for preventing printing of the screen of a display 14 on the screen of this display 14. Drawing of this animation is performed to the animation window memory 22 which is the bit map memory of the same size as this screen. Moreover, this animation drawing processing is performed by performing the animation program 23 stored in external storage, such as a magnetic disk. In case a screen saver I21 displays this animation on the screen of a display 14, it requires generation of the window of the same size as this screen from the windowing section 15, and receives ID of this window from this windowing section 15.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the whole information-processor configuration which is one example of this invention.

[Drawing 2] It is drawing explaining the means of displaying of the screen saver screen in this example.

[Drawing 3] It is drawing explaining an example of the screen saver screen of this example.

[Drawing 4] It is drawing explaining the temporal response of the contents of a display of the above-mentioned screen saver screen.

[Drawing 5] It is a flow chart explaining actuation of a screen saver I.

[Drawing 6] It is a flow chart explaining actuation of a screen saver II.

[Drawing 7] It is drawing explaining actuation of the conventional screen saver.

[Description of Notations]

10 CPU

13 Display Memory

14 Display

15 Windowing Section

16 Window Memory

17 Mouse

18 Key Input Section

21 Screen Saver I

22 Animation Window Memory

23 Animation Program

25 Screen Saver II

26 SEBA Window Memory

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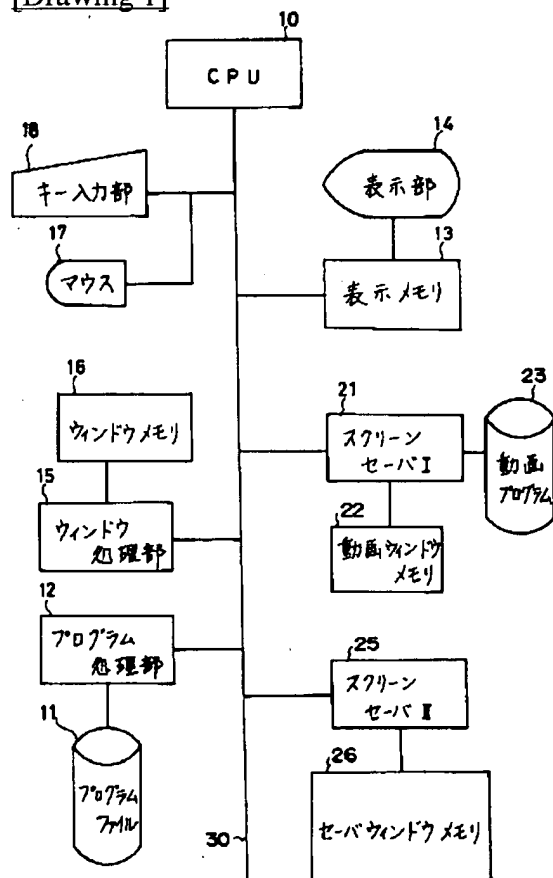
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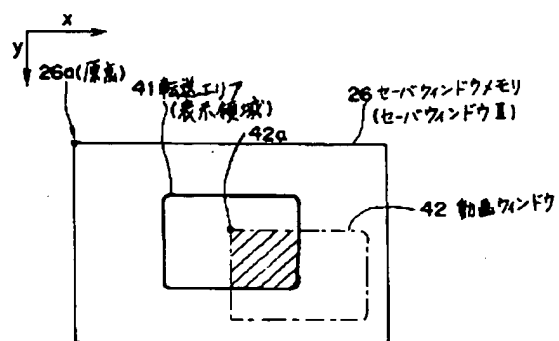
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## DRAWINGS

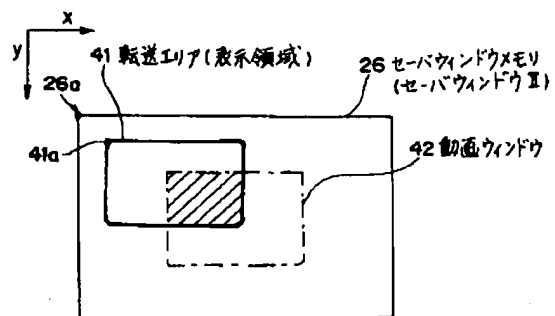
[Drawing 1]



[Drawing 2]

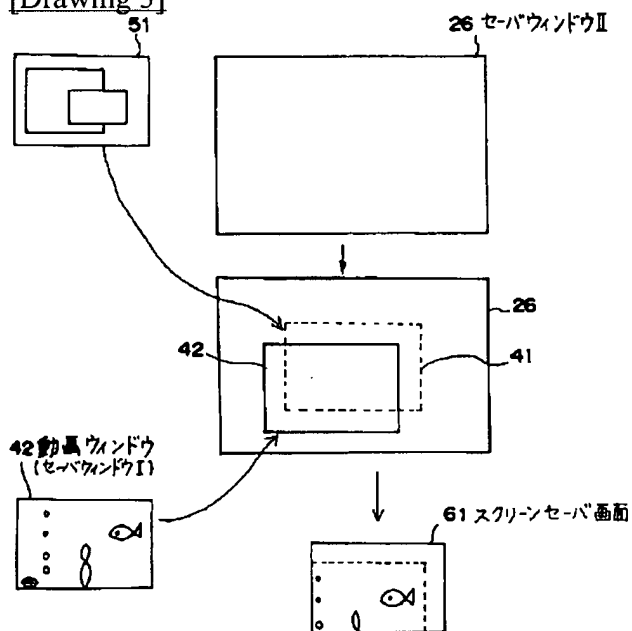


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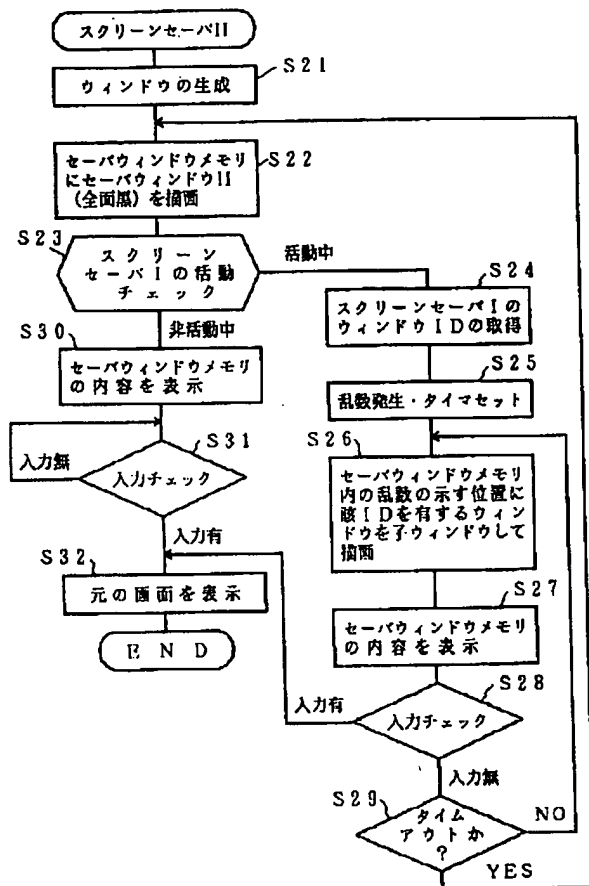
(b)

[Drawing 3]

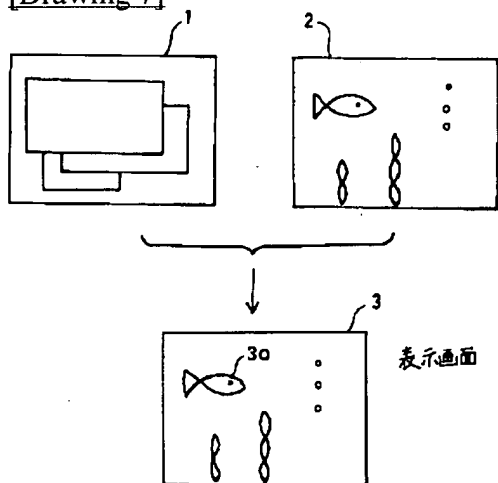


[Drawing 4]





[Drawing 7]



[Translation done.]